

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 103***

Claims 22-23, 28-29, 33-41 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,607,998 to Markusch et al. in view of U.S. Patent No. 5,760,098 to Haas et al. and further in view of U.S. Patent No. 5,340,652 to Sondhe et al.

As to claims 22, 28-29, and 40-41 Markusch discloses a process for preparing plastic parts with non-sagging polyurethane composition, including automotive mouldings (Column 10, lines 52-55), wherein the polyurethane is prepared by mixing A) a liquid polyisocyanate, including aromatic (See Examples, Column 4, lines 5-65) with a liquid isocyanate-reactive mixture B) comprising from Bi) 40 to 98% by weight of high molecular weight polyols having from 2 to 8 hydroxyl groups, Bii) from 2 to 30% by weight of aromatic diamines (Column 7, lines 45-60), and Biii) from 0 to 30% by weight of low molecular weight diols or triols having hydroxy equivalent weight of about 200 or less (Column 3, lines 40-60). Markusch discloses that the polyurethane is moldable, in particular for automotive applications, but fails to disclose the process of molding and the addition of an epoxy or vinyl ester overlay.

However, Haas discloses a process for producing polyurethane moldings by reacting compounds containing hydroxyl groups with isocyanate-containing groups (Abstract) that are useful in the preparation of composite bodies comprising a polyurethane core and suitable cladding material that is applied overtop of the polyurethane core, such as an epoxy resin or an unsaturated polyester. Haas further discloses filling the mold with the reaction mixture and allowing the reaction mixture to react (Column 7, lines 4-15 and lines 45-55).

Haas fails to disclose wherein during the composite processing the steps wherein the gel coat polyurethane material and the epoxy and/or vinyl ester resin are not completely cured.

However, Sondhe discloses a urethane system is mixed in any convention manner generally applied under pressure to the top of the previously applied epoxy composition while the epoxy base layer is still tacky and then is finally cured while the epoxy system is still curing (Column 13, lines 29-47). Sondhe further discloses it is desired that the epoxy base layer is not fully cured when the urethane is applied so that a chemical bond will form between the layers. Because of the ingredients of both the epoxy system and the urethane system cure occurs at ambient temperature (Column 13, lines 55-62).

Therefore, it would have been obvious to a person having ordinary skill in the art to substitute the polyurethane material disclosed Markusch into the composite body disclosed by Haas because "it is prima facie obvious to combine two compositions (molded polyurethane compositions) each of which is taught by the prior art to be useful

for the same purpose (automotive moldings), in order to form a third composition to be used for the very same purpose....(to allow the compositions to develop their ultimate properties preferably at room temperature (Markusch, Column 2, line 65-Column 3, line 28). The idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850,205 USPQ 1069, 1072 (CCPA 1980).

Furthermore, it would have been obvious to a person having ordinary skill in the art in the process of forming composite bodies comprising a polyurethane core and suitable cladding material that is applied overtop of the polyurethane core, such as an epoxy resin or an unsaturated polyester to not completely cure the polyurethane gel coat and the epoxy and/or vinyl ester resin before contact because Sondhe discloses wherein it is desired that the epoxy base layer is not fully cured when the urethane is applied so that a chemical bond will form between the layers (Column 3, line 57-Column 4, line 15). Because of the ingredients of both the epoxy system and the urethane system cure occurs at ambient temperature (Column 13, lines 55-62).

As to claim 23, Markusch and Haas fail to disclose that the gel coat at 23°C displays an elongation at break of at least 3%, however, because all of the components are present in the composition it is inherent that the composition would have these properties. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicants' positions; and (2) it would be the Office's position that the application contains inadequate disclosure that there is teaching as to how to obtain a composition with these properties.

As to claim 28, Markusch prefers poly(propylene oxide) triols (Column 11, line 24).

As to claims 29, 33-36, and 39, Markusch discloses liquid isocyanate-reactive mixture B) comprising from Bi) 40 to 98% by weight of high molecular weight polyols having from 2 to 8 hydroxyl groups, Bii) from 2 to 30% by weight of aromatic diamines (Column 7, lines 45-60), and Biii) from 0 to 30% by weight of low molecular weight diols or triols having hydroxy equivalent weight of about 200 or less (Column 3, lines 40-60).

As to claims 37 and 38, Markusch discloses wherein polyether polyols and/or polyester polyols are suitable for the high and low molecular weight polyols (Column 8, line 65-Column 9, line 10).

As to claim 40 and 41, Markusch discloses polymeric MDI as a suitable polyisocyanate component and Markusch in view of Haas and Sondhe teach a synthetic resin.

As to claims 44-46, Markusch in view of Haas and Sondhe disclose a process of preparing a synthetic resin by adding a polyurethane reaction mixture to a mold without completely reacting, followed by the addition of an epoxy and/or vinyl ester overlap wherein the polyurethane composition is prepared by mixing A) a liquid polyisocyanate, including aromatic (See Examples, Column 4, lines 5-65) with a liquid isocyanate-reactive mixture B) comprising from Bi) 40 to 98% by weight of high molecular weight polyols having from 2 to 8 hydroxyl groups, Bii) from 2 to 30% by weight of aromatic diamines (Column 7, lines 45-60), and Biii) from 0 to 30% by weight of low molecular weight diols or triols having hydroxy equivalent weight of about 200 or less (Column 3,

lines 40-60). Markusch discloses that the polyurethane is moldable, in particular for automotive applications, but fails to disclose the process of molding and the addition of an epoxy or vinyl ester overlay.

Claims 26-27 and 42 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 5,607,998 to Markusch et al. in view of U.S. Patent No. 5,760,098 to Haas et al. and further in view of U.S Patent No. 5,340,652 to Sondhe et al. that has been explained above and is applied here as such in view of U.S. Patent No. 3,217,536 to Motsinger et al.

As to claims 26-27, Markusch in view of Haas and Sondhe teaches the basic process as set forth above. Not disclosed is the synthetic resin contains reinforcing materials. However, Motsinger discloses a polyurethane coating on an epoxy resin laminated with fiberglass (Column 3, line 66, column 4, and line 1). It would have been obvious to a person of ordinary skill in the art to combine the fiberglass laminated epoxy of Motsinger with the composition of Markusch and would have been motivated to do so for such desirable properties as to provide strength and weather protection (Motsinger, Column 4, and lines 1-14).

As to claim 42, Markusch in view of Haas and Sondhe disclose the basic material as set forth above. Not disclosed is that it is part of a wind vane. However, Motsinger discloses a similar material on a wind vane, in that it measures wind currents (Column 1, lines 50-55). It would have been obvious to a person of ordinary skill in the art to combine the use of Motsinger with the composition of Markusch and would have been

motivated to do so since a wind vane needs to be strong and weather resistant (Motsinger, Column 4, lines 1-14).

Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,607,998 to Markusch et al. in view of U.S. Patent No. 5,760,098 to Haas et al. and further in view of U.S. Patent No. 5,340,652 to Sondhe et al. that has been explained above and is applied here as such in view U.S. Patent No. 4,950,792 to Althaus.

As to claims 30-32, Markusch discloses aromatic amine used in the polyurethane mixture, but fails to disclose the preferred aromatic amine.

However, Althaus discloses MCDEA as a suitable aromatic amine component to be used as a chain-extending element in analogous polyurethane systems and further discloses that such aromatic amines show unexpectedly better elastomer properties with equally advantageous processing times (Column 2, lines 12-19).

Therefore it would have been obvious to use the chain extender of Althaus for the chain extension step of Markusch since they are disclosed as being preferred for analogous polyurethane systems, and it is *prima facie* obvious to add a known ingredient to a known composition for its known function. *In re Lindner* 173 USPQ 356; *In re Dial* et al 140 USPQ 244.

***Response to Arguments***

Applicant's arguments with respect to claims 22-44 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL L. LEONARD whose telephone number is (571)270-7450. The examiner can normally be reached on Mon-Fri 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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